.....O
$$CH_2OH$$
 CO_2H HC OH OH OH $(HES-CO_2H)$

В

HES-CO₂H +
$$\begin{pmatrix} O & O & DMF \\ O & O & O \\ O & O & O \end{pmatrix}$$
 [HES-CO-NHS] $\begin{pmatrix} +R-NH_2 & O \\ HES & H \end{pmatrix}$

Figure 1

$$HES-CO_2H + R-NH_2 \xrightarrow{EDC} \begin{matrix} O \\ \\ HES \end{matrix} + \begin{matrix} N-R \\ \end{matrix}$$

В

HES-
$$CO_2H + HO - N$$

$$O$$

$$O$$

$$O$$

$$(EDC)$$

$$O$$

$$O$$

$$+R-NH_2$$

$$O$$

$$N-R$$

$$HES$$

$$H$$

C

HES-CO₂H
$$\xrightarrow{-H_2O}$$
 HES \xrightarrow{O} $\xrightarrow{+R-NH_2}$ $\xrightarrow{N-R}$ HES \xrightarrow{H}

D

E

HES-CHO + R-NH₂
$$\xrightarrow{BH_3-Py}$$
 HES-CH₂—N-R

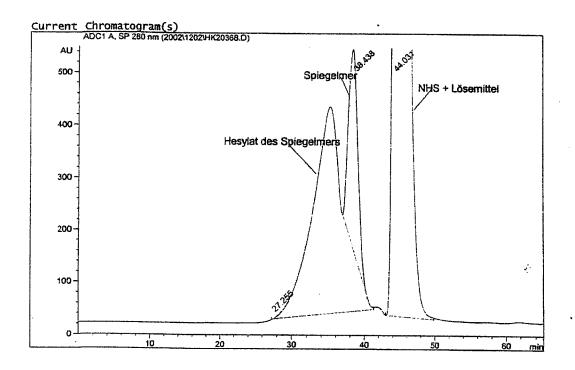


Figure 3

Lösemittel = solvent Hesylat des Spiegelmers = hesylate of the Spiegelmer

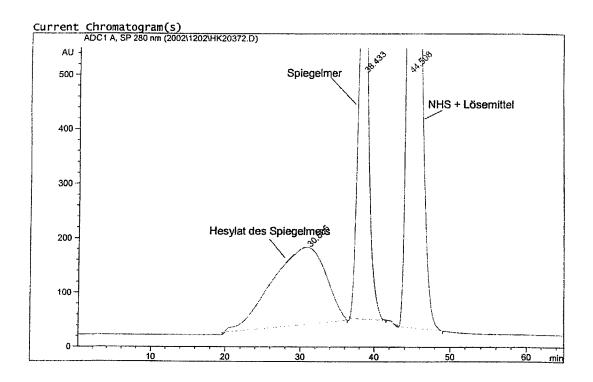
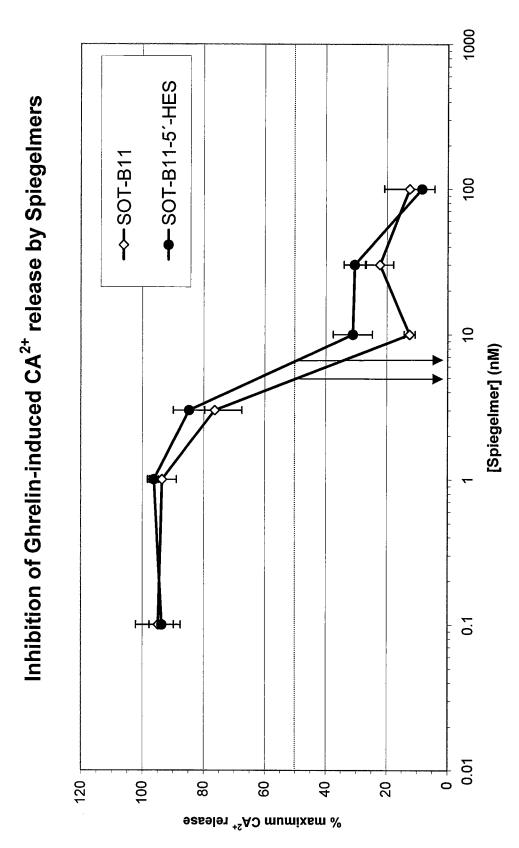


Figure 4

Lösemittel = solvent Hesylat des Spiegelmers = hesylate of the Spiegelmer



Figure